10> Southern Illinois University   #4

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<120>   SOYBEAN SUDDEN DEATH SYNDROME RESISTANT SOYBEANS, SOYBEAN CYST
NEMATODE RESISTANT SOYBEANS AND METHODS OF BREEDING AND IDENTIFYING
RESISTANT PLANTS

<130>   1268/2/2

<150>   09/007,119

<151>   1998-01-14

<160>   20

<170>   PatentIn version 3.1

<210>   1

<211>   527

<212>   DNA

<213>   Glycine max

<220>

<221>   misc_feature

<222>   (1)..(527)

<223>   n is a, c, g, or t/u

<400>   1
tgttctagat agttcgcaat tcaatcaaat ttcccaatta taattgaata aaaagattca   60

tgaaatcagg tgatcaagcg aaaaataagc attaagcgta gaagagaagc aataacattt   120

ttttattaaa taataaaaga gtaattacat aaaaatatgt tcgattacat taaaccccaa   180

caaaggatga atttagcttc tcatgaccat ggggaaaatc aaacttgatg aacaagaaga   240

tgaagaagaa tccttaagga taaacactgc ctagctccaa tgtgctctct agtattttat   300

ctttcaaaaa tccccaagaa cccctaattt tcagtaagaa gcccattttc aatcagaagc   360

ccattttcaa tcaagaagcc cattttcaat cagaagccca ttttcaatca gaagcccatt   420

ttcaatcaga gcccatttt caatcagaag cccattttat aattgtattc caaaacttg   480

agattcttga acgtaaatta ttagtaaatt gtaatcacct ctgtaaa   527

<210> 2

<211> 815

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(815)

<223> n is a, c, g, or t/u

<400> 2

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atgattacgc caagctattt aggtgacact actagaatac tcaagctatg catccaacgc      60
gttgggagct ctcccatatg gtcgacctgc aggcggccgc actagtgatt cagaagccca     120
aaggtaacag caataagtaa tcccttgttt ataagatccc agaacttcca gtttatttaa     180
tgaaaatgca ataacatcgg ctagtttcac aagtaatata caaatcggaa catcacattg     240
actacaatat atagtacata aattaacact aagaaacctc cttgatttga tattatgcat     300
ttacctatgt tgttccacaa gaatatactc aaatgacttt gccttgattt aaattatcac     360
gatgtaacac aaacaaagat gatantttgt cgatcaactg ttcagcacca agagagccct     420
ccccacaatc aactcaggtt ttcacttttg gtgcttgaaa atgagtggca catgnaaaag     480
caagagtcnt ctttgacaaa tgtgcctgcc ganagttatc antacttact aacaagataa     540
tgagccaaaa catcatctgg gncatcaacc ttcatgnctt tntcaagttt atacctatna     600
ntnactangt cttatatttn canntggtga ttacanttac nantaagttt agcttnaaga     660
aatncaagtt ttngggactc catgcctngn cnggntttcn natccgtcgg ccagggcggn     720
cnggnncact gntnggnagn cccanttncn cagancacng nccntttcc attccnggnc     780
cntcnncttc aangacngcc ggngaaancn ngggt                              815
```

<210> 3

<211> 435

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(435)

<223> n is a, c, g, or t/u

<400> 3

```
gcagatgtaa ctgttcccac aatatctaat attctagttc tagatgaaaa tattttttc      60
ccatagcaag caaagtatgg atttgtcatt tttcagagac gaagaactct caacaaacat    120
gtttatagta acttcattgc aaaactcaac aaatagattt ttggaacctt aatataataa    180
aattcaacag tcttctttaa ttttattctg ctcttacctt ctcataggat catatagaat    240
ttaaccctac aagctctcaa aaaacaatcc attattatgc tccttatcca ataaaacaaa    300
accatagagt gattctcaaa atgaagattg acaaaggcaa aaagttatgc tggntcaata    360
gcttctttat aattntcttc atcttgcacc ntcccngcct taggnggtct ccattgtcaa    420
tccaaaggtn ntcgn                                                     435
```

<210> 4

<211> 183

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(183)

<223> n is a, c, g, or t/u

<400> 4

```
ggtacccggg gatcctctag agtcgacctg cagggaggcg aatgtnatgt tganctttgc     60
tcgctcatat ggccttacag ggtttgccga attagtgtga aggtaattcg gtaaatggat    120
aatattgtat tcatttnata tttnatgatg ttacaagtnc aaggnataan ctgatgcctg    180
agt                                                                  183
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<210> 5

<211> 499

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(499)

<223> n is a, c, g, or t/u

<400> 5
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caggtagaca aatctgatgg tactgaagtt ggtcatacaa ttaaaaagtt ccctctttta       60
aagcccagag aatatgtgct agcttggaag tngtgggagg ggagtgatga aacattttac      120
tgttttatga aggtaataca ccaattatta tggttttttg tttaataaaa tgtgaataat      180
tgtcaatcgt gattgcatta tctctccttt actctgtctc ttcacctttt ttaccctttt      240
atttgagagg aagaatccat gtagtaaaaa atgatgataa aattgttaga aaatatagtg      300
tcatgtaatt agagattcag attataactt agaagacact attattttca tgtaatacta      360
tccacgggta attatcaata ctgacatatt ttcactcaaa atattctggt tttctcatta      420
tatacattta aataggagct attanccatt gcaagcttgg gtttggaggc cttccgatgc      480
cttgttggga ttgngacca                                                    499
```

<210> 6

<211> 500

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(500)

<223> n is a, c, g, or t/u

<400> 6
```
nagncaggga acccacacat acagacaatt aaaaccgttg gatgaaaatc atactactca       60
taaattgaaa atatatacgt aagancttca tctaacagtg ctagtcgaag aatgcgtaaa      120
tgcaggnnat ccatttccat actaaaatgg acaaaactta tatttttttt ttagcggcaa      180
acgttaatta ttaatttttt ttagtacaag ggatcaaacc angacctttc ccttctttcc      240
atctttcttg accacccaac caaccttata tctccacaaa acttattata tgttgttctt      300
cggggactat cagaattgga gtttaacctc gggcantcaa tctacataat ccttgatttn      360
atttngtgaa gttctaaagc cacaggcatt atttatntta ttntttctgn agtaacccnc      420
catatgttgg tnnataaggg tangnatnaa aatncnttgg ntggtnncna tttgcncttn      480
cnaggccggg gatggntttt                                                   500
```

<210> 7

<211> 189

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(189)

<223> n is a, c, g, or t/u

<400> 7

```
nnacaanana ncaggggatc ctctagagtc gacctgcagt gatactagaa ctnaatgaac      60

agggagagag agagagagag aganantnaa nataacgatg aagctctccc tattgacggt     120

gttcattgta gcaatagcat cgttatctct tattattgct ggttcatcat natctcaatt     180

ccagtggca                                                            189
```

<210> 8

<211> 724

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(724)

<223> n is a, c, g, or t

<400> 8

```
aattttttat ataagttgca aaatttaggg acttatttat tattaaatta tttgtaggga      60

ctaatttatc atattttttg tatattcagg aattaaattt aatttttcat ccttcaatac     120

taacttatta acgtttcaca ttttcaaaga cgagtctagc tatttataat tttttttcct     180

aaaatatatt ttttgtcctc ataaatatga aaatatttaa aattcgttcc taattttttt     240

ttcaaagcat ctttccttct cacaaaattg aaatgtatca ttttttttg ttcaaaagtt      300

taaataaatt tgaacctaat atgacatttt atatcggtta tacatataac tgatataaac     360

atcaagtttt ttatatcaat gataccataa actgatatca aatgtgacaa ttatatatat     420

aattaatgta aaaaagtcat aaatataatt tattttgagt caaaaaataa tatattttaa     480

ttattttgaa gatgaaaaag gataaattta aaacatttgt gtgangatga aaaactagat     540

gttttttttc ctggtttaaa tgcaaaacca atgctatttt atttaaattt tacctttttt     600

ttataattac nccaccaaaa aaccgtttgg tgttacaaat ttganttaaa ttctnttgtt     660
```

```
tattaaaaag ananattaat tnggaanggt cttttttnaaa acnctncngt cnantaacna      720
atct                                                                    724
```

<210> 9

<211> 801

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(801)

<223> n is a, c, g, or t

<400> 9

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acgccagtga ntgtaatacg actcctatag ggcgaattgg ccaagtcggc cgagctcgaa       60
ttcgtcgacc tcgagggatc acgctaatga tatattatta atcaactgct tcaatagagt      120
gcacacaccc tatctttcat aaaattacta cacttttttaa tttttgtaat aaaaaaccta      180
gaaaaactca ttatgaaaca gatgatgtac ttttaacact ctgtcggcct ctctctctct      240
attatatatt gatttaaatt tattgagaat tatattttttg ttgggtctca tttattatat      300
tttattaatt ggatccgggc cctctagatg cggccgcatg cataagcttg agtattctat      360
agtgtcacct aaatagcttg gcgtaatcat ggtcatagct gtttcctgtg tgaaattgtt      420
atccgctcac aattccacac aacatacgag ccggaagcat aaagtgtnaa gcctggggtn      480
cctaatgagt gagctaactc acattaattg ccttgcgctc actgcccgct ttccagtcng      540
gaaacctgtc ctgccagctg cattaatgaa tcngccaacc cncggggana agcngtttgc      600
ntatgggcgc tcttnccgct tcctcgctca ntgactcgct gcgctcngtc nttcngntgc      660
cgcgaacggt atcancncac tcnaangnng taaatacggt tatccaccna accnnggggga      720
naacccngga aaaaacatgt nanccaaaag gccnccaaaa ggccangaaa cnttnaaaag      780
gcccnnttgc ttgnctttnt n                                                801
```

<210> 10

<211> 809

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(809)

<223> n is a, c, g, or t

<400> 10
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nnnnnnttgt aaacgacgca gtgaatgtat acgaccacta tagggcaatg gccaagtcgg        60

ccgagctcga attcgtcgac ctcgagggat ctttttatgt tggtagctac tgtaatatca       120

tcttgtactt ttaactttta agtcatactc cctttggact catatataag caaaagagtg       180

gtcttgtatg tcggacttaa atataagcaa atctaactaa ttttgtccta tttaatactt       240

tcattcctaa aacacccttc atttaattct aattctattt ccaataactc tttttttattc      300

atgataacaa gttccaatga aggacatttt agaaataacc ttatttttta tttgagatta       360

gtaaaattaa atgatgtgaa ctaactttct taattaatgt gaaattagtt attttttctt       420

atatacgagt ccaaagggag taccaaattt cacaaatgta ctaaaatgta ttatatgctt       480

cttttttaatt catctttgct gcatanctac ttagctactg tgctctgatc cgggccctct      540

agatgcggcc gcatgcataa gcttgagtat ctatagtgtc cctaaatagc ttggcgtatc       600

atggtcatag ctgtttccng tgtgaaattg ttatccgctc acaattccac acaacatacg       660

anccggaagc ataaaagtgt taagccnggg gtgcctaatg agtgagctaa ctcacattaa        720

ttgcgttgcg ctcactgccc gcttccnatt cgggaaactg tcctgncanc tgcattaatg       780

aatcnggcca acccncnggg aaaaggcgg                                         809
```

<210> 11

<211> 810

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(810)

<223> n is a, c, g, or t/u

<400> 11
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acngccagtg aattgtaata cgactcctat agggcgaatt ggccaagtcg gccgagctcg        60

aattcgtcga cctcgaggga tctataatat ttctgacagc taccttttta tttagcttgc       120

agaggggctg attttggaga aaacatcatc catggtataa agtccgttta gattccagct       180
```

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```
attgttcaca ttcatccctt acatatgaga atatccctat aagctgaaac taacttttac      240

aaacaaacat gcaccgaacc attaaagttt gacttaatat ccggggtata atgaccttaa      300

ttcagaaatt cacataaata actaaaagta agttgtattt tatttatgtc tggatttact      360

gcacaaacta aacaaaagtt tgtggattta gacataaaaa ataccaatgc tgtgtgaaaa      420

taagaaatgg tggtcatata gacaagtttc ttttctgttt tctttaaatt gcagtcnaag      480

ccatcangag gttcatgtaa ttaaccaaac tagacgttga cttttggttt tatccttttg      540

tagaatagca agcaagtcat tataaatctg gccattggga cagcttagtt taactcccgc      600

cgcaaatttg ttaaaatatt naataataat atcacctaaa atcatatttg tcanttcatt      660

ttgtttttang ttatatcaat tattattttt taccttacnt cctttataat ntcaatgatg      720

ggacccaaaa aattatcaaa tacnttnaag cnttatttat tattaattaa ncctttaatt      780

ataattaaaa attcnattta atttttaan                                        810
```

<210> 12

<211> 777

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(777)

<223> n is a, c, g, or t/u

<400> 12
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anangattcg ncagctattt aggtgacata tagaaatact caagcttatg catgcggccg      60

catctagagg gcccggatct ttcggttgaa gcaaaattga agtcttttgc tcattttat       120

caaattcttt aatgaaaagt taattacata aaatatttta gtagaagcaa ttttacacag      180

ttattattta aaaaaattac acagttattc aataacaaat tacaatatat tataaggtta      240

taataaatat tttaaaattc atataaaaga tgacttatta ataagttgat aatgtaaatt      300

ttttacacta ttaaactcat tttacgtaat cttagcgaca acatactatt tttttcatga      360

aatttacaaa aagctttcaa aaataaaatt attagttgta cccccaaaat ataaaattat      420

tagctatgtt aaaaatttgt gaatttcata aaagaaaaaa atattacagt attatatatt      480

aaaattaaat ctcacaataa aaacacgtaa agttatcgtt ttgaattatt agttaaagtc      540

cttcgtctcg tattttctc aactctaccg acagcataaa caggttgtct ccttcntaat      600

aacaatcgtg gctgggaaca aaaatcgttt ttttagaaga atcngaaatc gtattgacgg      660
```

```
tgcgttttaa aaagactatc caataatctt cttttaataa cnctgaattt cnccaattct      720

tncncaacgg ttttttggtg cgttnttta aaaaaagttn aatttaatta aaatncn            777


<210>  13

<211>  775

<212>  DNA

<213>  Glycine max

<220>

<221>  misc_feature

<222>  (1)..(775)

<223>  n is a, c, g, or t/u

<400>  13
atnccnagc tattaggtga cactatagaa tactcaagct tatgcatgcg gccgcatcta         60

gagggcccgg atccaattaa taaaatataa taaatgagac caacnaaaat atattctcna       120

taaatttnaa tccatatttt antaaaaaaa aaaaggccna caaattntta aaattcctnc       180

nncnntttca tantnatttt tcctaggttt tttattncaa aanttaaaaa ttntattant       240

tttatnaaaa atagggtntn tgcacnctat tgaaccantn nattaataat atatctttan      300

cntnatccct caaggtcaac aaanttcana ncncggccna cttggccaat tcnccctata       360

gtgantcntn ttacaactca ctggccgtcg ttttacaacc tcgtgactgg gaaanccctg       420

gcgttcccca anttaatcnc cttgcaacat ntccccttc gccngctggt gttnataccn       480

aaaaggcccg cnccgatcgc ccttcccnac ttttgcgccc cctnaatggc naatggacgc      540

ccctgttncg ngcncattan ncgcggcggg tgtggtggtt accccacnt gaccctacac        600

ttgccagccc cctaaccccn cccctttcgc tttctcccct ccttttctcg ccncttcgcc       660

ggnttcccnt caagcnctaa atcggggctc cctttagggt tccnaattaa ttgctttacg       720

gccctccacc ccaaaaactt gataagggtg atggtcncnt tctggggcnn ccccn           775


<210>  14

<211>  796

<212>  DNA

<213>  Glycine max
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<220>

<221> misc_feature

<222> (1)..(796)

<223> n is a, c, g, or t/u

<400> 14

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acntgattca ccaagctatn taggtgacta tagaatactc aagcttatgc atgcggccgc      60

atctagaggg cccggatcag agcacagtag ctaagtagct atgcagcaaa gatgaattaa     120

aaagaagcat ataatacatt ttagtacatt tgtgaaattt ggtactccct ttggactcgt     180

atataagaaa aaataactaa tttcacatta attaagaaag ttagttcaca tcatttaatt     240

ttactaatct caaataaaaa ataaggttat ttctaaaatg tccttcattg gaacttgtta     300

tcatgaataa aaaagagtta ttggaaatag aattagaatt aaatgaaggg tgttttagga     360

atgaaagtat taaataggac aaaattagtt agatttgctt atatttaagt ccgacataca     420

agaccactct tttgcttata tatgagtcca aagggagtat gacttaaaag ttnaaagtnc     480

aagatgatat tacagtagct accaacataa aaagatccct cgaggtcgac gaattcgagc     540

tcggccgact tggccaattc ccctatagtg agtcgtatta caattcactg gccgtcgttt     600

tacaacgtcn tgactgggaa aacctggcgt tccccactta tcgccttgca gcacatcccc     660

tttcgccngc tggcgtnnta ccaaaaaggc cgcaccgatc gcccttcccn acagttgccc     720

cancctgaat ggcgaaatgg acccccctgt taccggccca tttaaacccc gnngggtgtt     780

gtggttnccc cnccn                                                     796
```

<210> 15

<211> 782

<212> DNA

<213> Glycine max

<220>

<221> misc_feature

<222> (1)..(782)

<223> n is a, c, g, or t/u

<400> 15

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attacgccaa gctattaggt gacactatag aaatactcaa gcttatgcat gcggccgcat      60

ctagagggcc cggatctttt attaaaaatt taattgagtc tcttaattat tgaaaagttt     120

aattaaatca tcaattatta aaaaaaatca accatatcct ttattgttta aaacattata     180
```

```
attatgctct ttcaaccaac tctgttagtt taattgatag aagttttgta aatagatatt        240

tttacataat ataaataatc tttttacata tattgcagcc aatgtaaaat attatctttt        300

tacattcatt gcttttgatg taaaaaatta ttgttttaca tatgttgtat tgacaataaa        360

tataaaaata tttattttg tcaattagat taatgaactg atgatgaaaa agatataatt         420

ataatatttt taataattag agaatttgat tgaacttttt aataattaaa aaattaaatg        480

aatttttaat tataattaaa gggattaatt atatatataa gctttaatgt atttataatt        540

tttggtgtcc ncattaatat tataaaagga tgtaagtaaa aaataataat taatattaca        600

taaacaaaat aaaatgacaa tattattagg tgatattatt attaatattt taaacaaatt        660

ncngcggagt taactaaagc tgtccaatgg ncagattata atgactgcct gcnattctnc        720

aaaaggataa aacaaaagtc cacgtctagt ttgggtaaat acatgaacct ccngaatggc        780

tt                                                                      782


<210>  16

<211>  801

<212>  DNA

<213>  Glycine max

<220>

<221>  misc_feature

<222>  (1)..(801)

<223>  n is a, c, g, or t/u

<400>  16
acatgattac acaagctatt taggtgacat atagaatact caagcttatg catgcggccg        60

catctagagg gcccggatcg cccttcccaa cagttgcgca gcctgaatgg cgaatggacg       120

cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta       180

cacttgccag cgccctagcg cccgctcctt tcgctttctt cccttccttt ctcgccacgt       240

tcgccggctt tccccgtcaa gctctaaatc ggggctccc tttagggttc cgatttagtg        300

ctttacggca cctcgacccc aaaaaacttg attagggtga tggttcacgt antgggccat       360

cgccctgata gacngttttt cgccctttga cnttggagtc cacgttcttt aatagtggac       420

tcttgttcca aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag       480

ggattttgcc gatttcggcc tattggttaa aaaatgagct gatttaacaa aaatttnacg       540

cgaattttaa caaaaatatt aacgcttacn atttcctgat ncggtatttt ctccttacnc       600

atctgtnccg tatttccacc gcatatggtg cactctcaat acaatctgct ctgatccnca       660
```

-11-

```
taatttaanc canccccgaa acccgcccaa caccccttaa aacncccta acgggcttgt     720

ntgctcccgg catccgctta acaaanaaac ttttaaacgt ntcccggaac ngcatntttt     780

naaagttttc acccncctcc c                                                801


<210>  17

<211>  798

<212>  DNA

<213>  Glycine max

<220>

<221>  misc_feature

<222>  (1)..(798)

<223>  n is a, c, g, or t/u

<400>  17
acatgattac gccaagctat taggtgacac tatanaatac tcaagcttat gcatgcggcc      60

gcatctagag ggcccggatc gcccttccca acagttgcgc agcctgaatg gcgaatggac     120

gcgccctgta gcggcgcatt aagcgcggcg ggtgtggtgg ttacgcncan cgtgaccgct     180

acacttgcca gcgccctagc gcccgctcct ttcgctttct tcccttcctt tctcgccacg     240

ttcgccggct ttccccgtca agctctaaat cggggggctcc ctttagggtt ccgatttagt     300

gctttacggc acctcnaccc cnaaaaactt gattagggtg atggttcacg tattgggcca     360

tcnccctgat agacagtttt tcgcccnttg acgttggagt ccacgttctt taatattgga     420

ccttgttcca aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag     480

ggattttgcc natttcggcc natnggttaa aaaatgagct natttaacna aaatttaacg     540

cgaattttaa caaaatattn aancttacaa tttcctnatg cgggtatttt ctccttacnc     600

atctgtgcgg tattttacaa ccgcatatgg tgcctctcaa ttacnanntg ctctgaatgc     660

cgcatatttt aaaccaacnc ngaaanccn tccaannacc cncttaancg ccccgaacgg     720

gttgntctgc cccngcatcc cttannaaac aactttaac cttctcctgg aacttcnntt     780

tttnaaaggt ttccnccn                                                   798


<210>  18

<211>  796

<212>  DNA
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-12-

<213>   Glycine max

<220>

<221>   misc_feature

<222>   (1)..(796)

<223>   n is a, c, g, or t/u

<400>   18
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ggccctccac caccccgaca agatacttgg ccattggaat tcataaccca tcagcctgtc   180

ccacgtccct tgtgtattct ggactctaaa ctcgacctct catcatctcc gccaaacaaa   240

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acngttaccc ggaagatacc cagattgagc ccccacttac taagacnaag cccaacgttn   420

cccctcnaga cctgcttctt gaatgactac nanactgact cnangaagaa gctccaacca   480

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ccnnaggtta cnttactccc tccccnctct ctanatttcc tntangaagc tgccttcccc   660

cnaaattagg ggccattctc ttcctttccc gtcttttcac tccctctgc tcttatcnng   720

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<212>   DNA

<213>   Glycine max

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cacnaatcnc attgtcngat ataacnaaat gcttttaac acgagtgctt cccctnacan         360

tgttagattt gagcccanct cccttctcaa tgatacatnc aggatgaacn ntttgacatn        420

nctccaccna tttggnagtc tcatgcacca ccacattccc ncagtatgtt tgaaggtcnt        480

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agcnttcttc ccaaancnat ttttnggaaa ccctctgttt tcnaagaaat tgggttcanc        660

tccaattctn tccattccna aggggttcct ccactttaac cccgnatnan caaccaaggg        720

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ngatataaca aaatgctttt taacacgagt gcttcacata acagtgtnag atttgagccc       240

aactcctttc tcaatgatac atccnggatg gaccaatttg acatgcatca ccnatttggc       300

agtctcatgc acaaccacat ttcccacant atgtntgang gtcattggcc ngttcactaa       360

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gttaccnaan cctttttccnc cnaatacngt ctnactaatt tggtactacc ccnccccttn    780

gtaccan                                                             787
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